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Defining and Valuing Wilderness in Antarctica

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Summary

Wilderness is a difficult term to define as it is a subjective concept. This paper uses three paradigms as a framework for discussing wilderness in general, and the Antarctic wilderness in particular. It looks at the Utilitarian view of wilderness; the view that wilderness is there to be used by man to ensure the greatest benefit for the greatest number. In contrast it looks at the Deep Ecology view of wilderness. This view sees wilderness as of intrinsic valuable, and human beings as just another part of the ecosystem with no right to damage it for any purpose. According to this view, man should get out of Antarctica and just allow the continent to be; to remain the last great wilderness. Finally, it looks at Libertarianism; the view that the Antarctic wilderness only has value in terms of its usefulness to human beings. This philosophy promotes private ownership as the way to protect the wilderness.

The Antarctic Treaty System is then analysed in terms of these paradigms. It looks at which paradigm shaped the Treaty, finding that it was largely informed by the Utilitarian view. This changed in the 1980s when, with the failure of CRAMRA, there was a move towards a Deep Ecology paradigm with its emphasis on the intrinsic worth of the wilderness, and therefore the necessity of putting measures in place to protect it. This approach has been consistent up until today. However, future commercial pressures on the Antarctic wilderness may provide a catalyst to change this approach. These pressures may come from tourism companies wishing to expand tourism in the region, from firms wanting to carry out bioprospecting and from mining interests. This must result in a shift in the paradigm that shapes the working of the Antarctic Treaty System.

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1. Introduction

Antarctica's isolation and vastness as well as the relative absence of human activity has often led it to be labelled the globe's last great wilderness. It is these wilderness qualities that have led to Antarctica being ascribed a special status both within the international community as well as within the global social consciousness.

However, what is wilderness? or, more specifically, what is Antarctic wilderness? and how do our definitions of Antarctica as a wilderness area shape the behaviour of the international community?

This paper seeks to address these questions so as to be able to 1) identify how Antarctic is perceived as a wilderness area, 2) identify areas of consensus and tension around present definitions of Antarctic wilderness, and 3) how changes in our concept of Antarctic wilderness lead to changes in human activity in the region.

This paper opens by placing the concept of wilderness in a broader historical and social context. Secondly, it introduces a framework for analysis, in which Utilitarian, Deep Ecology and Libertarian paradigms of wilderness are examined. The third section is the analysis proper, and identifies the respective qualities of the paradigms in the context of the Antarctic. The final section utilises the framework developed from the previous two sections to analyse the paradigm of Antarctic wilderness values that presently exist in the Antarctic Treaty System, to identify pressures on the current wilderness paradigm and note potential repercussions. The paper finds that Utilitarian paradigms have dominated decisions made within the Antarctic Treaty System from its inception to the late 1980s and is specifically marked by the demise of the Convention for Antarctic Mineral Resource Activities (CRAMRA). At this time, Deep Ecology paradigms entered the consensus, which has remained static to the present. The current consensus will come under increasing pressure in the future from commercial tourism, bioprospecting, and potentially mining activities.

1.1. The Historical Context of Wilderness

Oelschlaeger (1991) argues that the idea of wilderness has changed over time with the development of human society, and that it has passed through four distinct phases. The first phase, or *Prehistoric* phase, is a period in which humankind lived exclusively in an unmodified natural environment. As nature was the key provider for human needs, the natural environment was deemed sacred and humanity sought to live in a manner that was in harmony with, and an integral part of, the natural environment.

In the second, or *Ancient* phase, social institutions had become more complex than prehistoric times and agricultural developments had transformed both society and humankind's relationship with the natural environment. Belief systems, such as the Yahwists, who believe in one god who created all things, rejected the idea of nature being sacred in its own right, in favour of worshipping their god. Under this paradigm, man was created in God's image and consequently humankind was separate from nature, which was part of a fallen and profane world. Heaven assumed the new locality for perfection and as the ideal home, with humankind now concerned with taming nature for safety and agricultural production. However, wilderness also continued to be an important forum for seeking or meeting God, or oneself. Oelschlaeger (1991) argues that the impact of Yahwist theology in western culture led to an idea of nature being worthless unless it was humanised.

The third, or *Modern* phase, is marked with the beginning of the Renaissance and runs into the present. This period has seen the 'civilisation' of wilderness areas in much of Europe and North America, as well as elsewhere around the globe. Modernism sees wilderness as useful for scientific inquiry and as a source of resources to drive economic prosperity. This phase marks the separation of humanity from wilderness and is marked by an increased homocentric paradigm amongst humanity and the increased exploitation of the natural environment.

The fourth, or post-modern, phase views the world as entirely wilderness within which humanity is a single species. This view obliges humanity to live as part of a

broader ecological system in which human presence does not negatively affect upon the system as a whole.

The development of these phases underscores the complexity of the idea of wilderness, and aptly illustrates how a change in humankind's perception of the natural environment shapes the parameters for acceptable human activity.

2. Methods

2.1. A Framework for Analysing Ideas of Wilderness

The process of building a robust definition of wilderness in the 21st century is fraught with tension between competing sociological, anthropological, economic and environmental paradigms as, it is important to note, the notion of wilderness is a social construct, not a natural one (Oelschlaeger , 1991). By way of example, consider the similarities and differences between these definitions of wilderness:

- "For Westerners, the term 'wilderness' derives from the Anglo-Saxon word 'wilddeoren' and, later, the Old English 'wildernesse'. Both words translate roughly as 'place of wild beasts' (National Park Service, 2006).
- "Wilderness is a dark and dismal place where all manner of wild beasts dash about uncooked" (*cited* Wilderness Institute, 2006).
- "A part of our natural landscape that is sufficiently large and varied to constitute a more or less self-regulatory ecological unit, where human interference with the land, plants and animals is minimal, and where the beauty and character of the landscape has aesthetic, cultural or scientific significance" (Canadian Council of Forest Ministers, 2007).

The sole common denominator amongst these definitions is that natural wilderness is a place that humankind is commonly not. However, such definitions, neither together nor alone, provide guidance as to the Antarctic's wilderness qualities, or how these qualities might best be managed.

The above question is a complex one, largely because it is a personal one. As Oelschlaeger argues, "the experience of wilderness as an 'other' is necessary to any grounded understanding of humanbeingness and articulation of individual identity. We can be

what we are capable of being only if we have some sense of what we are not" (1991, p.5). Consequently, ask a person to define the wilderness values of the Antarctic and the usual answer will not only include definitions of the present, but the projection of their aspirations and values for the continent in the future. In this way, one might consider there to be as many definitions of the Antarctic wilderness as there are perspectives of Antarctica. Obviously from any analytical perspective this is not a useful standpoint. Consequently, the challenge for any attempt to define or analyse Antarctic wilderness values, is to be able to 1) identify consensus or trends on areas of commonly held values, and 2) identify how these values find a working consensus in a way that shapes our decisions about Antarctica's future. To achieve this goal, this paper steers clear from building a sole definition of wilderness. Rather, it builds a framework to examine a continuum of key fundamental paradigms of Antarctic wilderness, and then seeks to examine their properties to identify how these paradigms shape our definitions – and consequently, our actions in both the present and the future.

The adoption of this approach is useful for a number of reasons. Firstly, paradigms of wilderness are not permanent, but rather social constructs around which a temporary consensus forms. For example, consider the different paradigms on Antarctic wilderness values that exist in the present time and compare it to the paradigms that existed during the International Geophysical Year in 1957 or the austral summer of 1911/12 in which Amundsen and Scott raced to the geographic South Pole. While a specific definition of the Antarctic wilderness might provide insight into any one of these events, the approach adopted here would allow us to analyse all three paradigms as well as providing a mechanism to compare their traits. Secondly, as previously noted, definitions of Antarctic wilderness are often deeply personal, and may even be pre-tailored to suit a specific action. The construction of a framework to examine a range of definitions avoids personal bias and resists constructive definitions whose normative value diminishes their ability to draw meaningful analysis. Thirdly, as changes in paradigms of Antarctic wilderness values result in changes in standards of human activity, this approach allows analysis of

where the present consensus on the Antarctic's wilderness value lie, as well as the opportunity to identify emerging pressures for change.

Finally, it is important to note that the analysis is not asking if the Antarctic or parts of the Antarctic are wilderness. Rather it is stating that the Antarctic is a natural environment, and that how we define this area and its values fundamentally shape the parameters for human activity in the Antarctic.

For the purposes of this analysis, the term "Antarctic wilderness" is defined as the area south of the Antarctic convergence. A broad range of international agreements including The Antarctic Treaty (1959), The Agreed Measures (1964) CCAMLR (1980) and the Madrid Protocol (1991), manages this area. All of these agreements form part of the Antarctic Treaty System, and are examples of how humanity has chosen to both define and manage wilderness.

3. Three Paradigms of Wilderness

This paper looks at three competing paradigms of wilderness: Deep Ecology, Utilitarianism and Libertarianism. These three key paradigms cover key positions on wilderness on a continuum from those that seek to provide a high level of protection of Antarctic wilderness through to those that provide for the exploitation of Antarctic resources, albeit under certain conditions. It is worthwhile to remember during the analysis that we are looking at two different types of values. Utilitarianism and Libertarianism are Consequentialist theories. That is, theories that hold that an action is good, or justified, where it produces good outcomes (or more correctly, outcomes whose benefits outweigh detrimental side effects).The key thing to note with Consequentialist theories is that moral worth of the outcome is largely a matter of where the boundaries for the judgement are drawn. This approach is in stark contrast to our Deep Ecology paradigm which may be classed as a Deontological approach. Deontological approaches place the judgement on the type of action, as opposed to the outcome of the action. As will become evident in the analysis, this provides for considerable overlap between the theories as to what is acceptable and unacceptable, however, often for entirely different reasons.

3.1. Deep Ecology Paradigm

3.1.1. Deep Ecology Beginnings and Foundation

The Deep Ecology school of thought began in 1973 with the Norwegian philosopher Arne Naess. Naess differentiated between conventional environmentalism termed "shallow ecology" and "deep ecology"(Fox, Sessions, and Mander 1995). Shallow ecology is an anthropogenic based environmental movement concerned primarily with pollution, resource depletion and the health and affluence of people in developed countries. Deep ecology demands a shift from an anthropogenic to a biogenic perspective, reducing human arrogance when dealing with the natural world (Oelschlaeger 1991). This view challenges modern ethical theory, which is entirely based on the premise that the human species stands apart from, and is superior to the rest of evolution (Dryzek and Schlosberg 2005).

3.1.2. Significance of the Wilderness

A deep ecologist views the wilderness as having ecological, spiritual and aesthetic significance. The ecological significance of the wild is the integrity of the unaltered ecosystems interacting within the whole of the wilderness (Morrison 2006). These ecosystems and subsystems operate independently from any human input or disruption: that is to say, they are autonomous from the human environment. The simple knowledge that theses ecosystems exist is sufficient worth to justify their protection. The deep ecologist believes that all life on the planet, no matter how frail or slight, has its own intrinsic value, and that the wilderness is not required to provide resources to the human environment in order to rationalize its existence. The spiritual significance of the wilderness is of a personal nature. This personal primordial nature is the deepest knowing of the wilderness. Primordial nature is the personal relationship that one has with the wilderness. Nature's productivity and theory are merely limited aspects of a fundamental relationship with the wilderness as an entity. This entity is the unity of all

beings making up the nested systems within the wilderness (Morrison 2006). The aesthetic value of the wilderness is more than its ability to provide pleasing photographs and postcards for an affluent society no longer in direct contact with nature. The wilderness aesthetic involves no consumption or dilution of any resources, but stimulates the awareness of natural processes that form the land and give living things on the land their characteristic form and demeanour by which they maintain their existence (Dryzek and Schlosberg 2005).

To deep ecologists the preservation of unspoilt wilderness is the indisputable issue of concern (Trainor 1999). Wilderness is the true sublime, wilderness is the real world, the stage for evolution, the cauldron from which we humans emerged and the place which we share with all other living things (Foreman 1998). The world where we spend our days surrounded by gadgets, machines and politics is the artificial world, and only a transitory phenomenon. The artificial world is a place where powerful elites extract an unjust proportion of resources to maintain fantasies that are inefficient and unsustainable (Morrison 2006). Only a tiny proportion of human existence on this planet has occurred outside of the wilderness, and human existence is merely a product of the wilderness.

3.1.3. Antarctic Wilderness

A Deep Ecology view of the Antarctic wilderness is a biocentric view. Biocentrism states that all living things possess intrinsic value and are of inherent worth. The living beings of Antarctica and the Southern Ocean live for their own sake, not merely to be harvested by humans. Antarctica's mountains, glaciers, valleys, ice sheets, ice shelves and biomass rich oceans do not occur on the planet for the convenience of humans. These fundamental features make the continent its own wilderness; human presence on the continent only detracts from the wilderness's value.

A deep ecologist's Antarctica is a continent devoid of the trappings of humanity, a continent without fuel tanks, ice breakers, airfields and pleasant little green buildings nested on its frozen rocky shores. To survive in the Antarctic wilderness humans have imported infrastructure from civilisation. The mere presence of this infrastructure detracts from what many people seek to find in Antarctica. The untouched continent that awaited the heroic explorers of a bygone era was a true wilderness. This wilderness provided no resources to human civilisation, and offered no refuge from the harsh reality of the polar environment. Soon humans distorted this relationship extracting resources and constructing shelter, forever changing the untouched character of the wild.

3.1.4. Aspects of Deep Ecology Paradigm in the Antarctic Treaty System

Agreed Measures for the Conservation of Antarctic Fauna and Flora (1964)

Under the Agreed Measures, provisions to designate Antarctic Specially Protected Areas (ASPAs) have been created. ASPAs are designed to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, or a combination of these values. Protection of these values within the ASPA is achieved by restricting human traffic into the area. This hands off approach to conservation through the creation of specially protected areas is akin to a Deep Ecology view of the preservation of unspoilt wilderness. The prevention of human interaction with the protected area acknowledges that the area is of intrinsic value, and that this value is enhanced by the absence of humans.

Protocol on Environmental Protection to the Antarctic Treaty (1991)

The Protocol on Environmental Protection to the Antarctic Treaty, agreed to in 1991 and entering into force in 1998, designated Antarctica as a "natural reserve devoted to peace and science", and provided for comprehensive protection of the Antarctic environment (Madrid Protocol, 1991). The principles of peace and science are akin to the aesthetic values of Deep Ecology in that they stimulate awareness of the natural processes that form the land and give living things on the land their characteristic form and demeanour by which they maintain their existence.

3.2. Utilitarianism Paradigm

Utilitarianism is derived from the Latin 'utilis', meaning useful. The Oxford Dictionary (1976) defines utilitarianism as a "doctrine that actions are right because they are useful; and that the greatest happiness of the greatest number should be the guiding principle of conduct." Others have defined utility as "the good to be maximised – happiness, pleasure, or wellbeing. While it is natural to consider only the wellbeing of humans when interpreting this doctrine, utilitarians count the interests of any and all sentient beings when assessing overall utility. Thus the interests of animals have importance." (Wikipedia, 2007)

John Stuart Mill, 1863, advanced the Utilitarian theory: "Whatever can be proved to be good, must be so by being shown to be a means to something admitted to be good without proof."

Roget's Thesaurus defines 'utilitarian' as "being of good policy or benevolence".

3.2.1. Utilitarian view of wilderness

Positioned between Deep Ecology and Libertarianism, a Utilitarian view of wilderness is a comfortable symbiosis of a mostly remote natural world and a resource for the necessities and wants of life.

The following examples are from America, but similar events have occurred throughout the world as new lands have been discovered and settled. In the 1850s Henry David Thoreau and others noted that "in wilderness is the preservation of the world." As the 'New World' became more civilised, an appreciation of its uncivilised state also developed, and national parks were developed (Wilderness Management Course 2006).

Because of the utilitarian goals involved in developing America's transportation and recreational tourism industries, it was a challenge to find a way to make the parks

commercially profitable while simultaneously preserving unique qualities. Most people agreed that recreational pursuits were compatible with conservation efforts to protect wilderness. Foresters, who managed and harvested timber in a sustained yield for continuing supply of products, also recognised the need for preservation in the natural state – for recreation. Such an approach to conservation ensured that the nation could have its forests and use them too.

For the first European settlers the wild continent had been an enemy to be subdued, but as the wilderness became less dangerous and less infinitely vast, it began to seem more valuable and attractive. By 1901 the new conservation movement was divided into 'utilitarian' (wise use of land – the resources of the wild to provide the greatest benefit to the greatest number of people) and 'preservationist' (the wild should be left untouched).

In the early 1900s, the Mayor of San Francisco proposed damming a nearby valley in order to provide a supply of much needed fresh water for the city. This proposal caused fierce debate for a number of years. John Muir, an early advocate for wilderness, put forward the idea that preserving scenery was more important than providing drinking water and electricity for the city, even if the area was replanted to make it attractive. Eventually the dam was built (Chowder, 1990).

Utilitarianism as a paradigm for wilderness management has similarities with New Zealand's Resource Management Act (1991). This seeks to balance resource use for economic and social benefits with conservation of natural resources in order to maintain ecosystem function and resources to keep options open for future generations. The Act operates by ensuring that adverse events arising from use or development are minimised (Ministry for the Environment, 2006).

The wilderness idea favours virile and primitive recreation, because the main reason wild lands were preserved was for such utilitarian purposes (Callicot, 2000). The wilderness idea also perpetuates a pre-Darwinian separation of Man from Nature. 'Wilderness' is often confused with the role of 'wilderness area' in contemporary conservation. A more

modern definition of 'wilderness' could be that of 'biodiversity reserve', which more clearly expresses its most important role: a habitat for non-human species that does not sit well with Homo sapiens.

And what about the tangible evidence of man's presence in the wilderness? When does a building become a structure of historical interest? Does it not add to the wilderness experience in emphasising the loneliness, the hardships, and the personal strengths of the first explorers?

3.2.2. Utilitarian view on exploiting Antarctic wilderness

Antarctica is said to be the greatest, or last, wilderness on earth. Surely, within this vast and remote lonely place there is plenty of room to satisfy those who seek pristine landscapes, unusual wildlife, education, research, and adventure in quiet, unpopulated places? They need not go to other areas, where the resources could be utilised for the good of humankind. Would not everyone benefit to have their cake (seal!) and eat it too, if both were permissible in an ecologically sustainable environment, in a utilitarian Antarctica?

Such an Antarctica would not be locked up for a privileged few. Minerals, food, the results of science such as climate change data and bioprospecting would be made available in a sustainable and environmentally friendly manner. Visitors might have the option of experiencing only natural areas or both natural and working areas. Yet, if given the opportunity of touring a historic hut, a working station, or a scientific project such as ANDRILL, how many ecologically minded visitors to Antarctica today would forego it?

We should not remove all evidence of human occupation, but carry on preserving a significant building here and there. If accommodation on land is required, perhaps it should be built in the style of the Heroic Era, lovingly crafted by hand? It would, of course, include environmental modifications and a few home comforts, similar to the

reproductions in some US national parks (Worf, 1993). And in addition to the wilderness adventure tours currently run in the Antarctic Peninsula, we could run 'heroic explorer' type tours, as featured in Kim Stanley Robinson's *Antarctica* (1997*).* Utilitarianism would welcome the likes of helicopter pads and permanent climbing anchors, needed to ensure everyone's safety. We would probably need a lot more communications and power generating structures too, hopefully positioned in not very obvious places.

Is wilderness for man, or for nature? The major reason for science being carried out in Antarctica is *because* of its pristine environment. The wise use of *all* areas to the highest environmental standards is essential, even if they appear to be 'only an odd hectare or two' in the middle of a continent 14 million square kms in size (Codling, 1998). So much less wilderness remains in the world that the reasons for developing it need to be much stronger before they make sense, i.e. we need wilderness *more* because there is *less* of it.

In summary, it is the "ongoing Man versus Nature debate – one of the species that has become endangered by the rush of progress is humankind itself. Terrifying pockets of modernity such as nuclear waste and acid rain have made preservation, in the end, perhaps the most utilitarian stance of all." (Chowder, 1990)

3.2.3. Utilitarianism and the Antarctic Treaty System

A Utilitarian would class the Antarctic Treaty System as a great achievement, giving the greatest good to the greatest number of people. Science and research have been carried out with territorial claims on hold and international co-operation. Documents such as The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) have been added to manage marine ecosystems in a sustainable manner.

3.3. Libertarian Paradigm

3.3.1. A Libertarian View of Wilderness

Libertarianism is a political philosophy that believes in self-responsibility and opposes government regulation. They oppose the welfare state, conscription and the use of violence. To a Libertarian, the only legitimate use of violence is in self-defence. The aim of the libertarian movement is a free, peaceful, abundant world where everyone may pursue their dreams, and realise their potential. They own their own life and property and are free to make their own decisions concerning these so long as those decisions do not impinge on the rights of others (Boaz, 1999).

There are two varieties of Libertarianism:

1. Those that believe all interaction should be voluntary, and thus, unregulated.
2. Those that come from a more utilitarian viewpoint. These Libertarians support limited government that uses minimal force. An example would be taxation to provide basic services, and minimal regulation.(Wikipedia, 2007)

(Nolan, 2005) who founded the United States' Libertarian Party in 1971, writes that a Libertarian must hold to 5 key points:

- You own yourself.
- You have the right to self defence.
- There should be no criminal possession laws. Thus, you may own your own guns, marijuana, pornography so long as this does not harm others.
- There should be no taxes on productivity.
- A sound money system

Richman expressed a Libertarian view of government regulation this way:

"The only barriers to human progress remain government intervention prompted by social engineers and special interests." (Richman, 2006)

In essence, a Libertarian maximises individual rights and minimises the role of the state.

While Libertarian philosophy has been voiced for years, and more recently by authors such as Ayn Rand, it has only been since 1971 that there has been an American political party that espouses those views. The United States Libertarian Party claims to be one of the largest continuous 'third parties' in the United States with 200,000 registered voters. They claim to have 600 Libertarians in some form of public office, ranging from mayors to county executives (Nolan, 1991).

"We defend each person's right to engage in any activity that is peaceful and honest, and welcome the diversity that freedom brings. The world we seek to build is one where individuals are free to follow their own dreams in their own ways, without interference from government or any authoritarian power." From Preamble to the Libertarian Party Platform.

There is also a New Zealand Libertarian Party, called Libertaria**NZ**, The Party of the People. It has similar policies and promotes private property rights as the way to preserve the environment. It promises to repeal the 'fascist' Resource Management Act if elected.

3.3.2. What is the Libertarian View on the Environment and the Wilderness

Richman asks, what is meant by the environment? What is meant by damage to the environment? "In a moral sense you can't damage a rock or a polar icecap." And, why should we care? The land does not care (Richman, 2006). The major point that he is making is that the concern about the environment is not actually about the environment, but about people. "Yes, it's all about people…a proper discussion of the environment ought to focus on individual persons, their rights, their interests and their property."

He controversially writes “Many environmentalists slip into the fallacy of intrinsic value. This is the view that environmental amenities are values in themselves, rather than of value to someone. But it is hard to make sense of the claim that a pristine wilderness that no human being is anywhere near is intrinsically valuable.”

Wollstein comments that everyone wants a safer and less polluted environment. Libertarians are as aware as anyone else that we are damaging the environment, harming ourselves and threatening the welfare of future generations. They agree that polluting the environment is wrong (Wollstein, 1993).

So, what is their policy? Libertarians believe that the approach that the Earth is the common property of all is doomed to fail. The result of that view is that no-one takes responsibility. Usually, common ownership results in overuse and misuse of the land. They also state that government ownership and regulation does not work. Conflicting interests often mean that government agents and powerful corporations override the interests of ordinary citizens. Libertarians believe that the solution is private ownership of wilderness areas. This is known as *freemarket environmentalism.* Individual owners have a vested interest in their property and will therefore conserve and manage for the long term. They will have a moral and ethical incentive to defend their resources, and a moral responsibility to avoid using the property to damage others (Wollstein, 1993).

Ruwart supports this view, People act in their own selfish interests. When they own property, they profit most by caring for it. When they simply have bureaucratic oversight, they profit most from exploiting it. A Libertarian government recognises this pattern and privatises the environment.

Libertarians value the wilderness areas, and acknowledge that humanity is damaging it. Their solution is private ownership of these areas.

3.3.3. The Libertarian View on Exploiting Antarctic Wilderness

Unlike the Deep Ecology view, Libertarians do not see inherent value in wilderness. They believe that value must be in relation to human beings. That is, it must be of value to someone or thing.

Libertarian philosophy promotes private ownership and the freedom to use your property as you wish. However, this freedom is constrained by the golden rule; you must not impact on the freedom or choices of others. Consequently, they would have no problem with fishing, sealing, whaling or taking penguins in Antarctica so long as it was sustainable. They would see private ownership of fisheries as the most effective way to protect marine species. They promote the expansion of private property rights, the creation of ocean fishing property rights, as a means of conserving ocean-going fish and mammals for example (Wollstein, 1993).

Libertarian philosophy would suggest that they would have no issue with mining of minerals, or drilling and extracting oil as they see that they only have value in terms of their usefulness. But, if this was to be done, the environment should not be polluted, or long term damage caused as this would damage its value to others.

Libertarians who come from a more utilitarian viewpoint would argue for some form of regulation of mining sites. This would promote responsibility for any damage caused. This policy is known as free market environmentalism and stems from the belief that individual owners will conserve and manage resources well in order to protect their own investment, for themselves and for their children.

3.3.4. Libertarians and the Antarctic Treaty System

The aim of the libertarian movement is a free, peaceful, abundant world where everyone may pursue their dreams, and realise their potential. Everyone owns their own life and property. Therefore, Libertarians would regard the Antarctic Treaty (1959), as

fundamentally flawed as it places suspends all current and future territorial claims. In Article IV it states, "No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica."Libertarian views on private ownership fly in the face of this fundamental principle of the Treaty.

Libertarians value wilderness for its many uses to mankind, but believe that without private ownership there is no specific responsibility. Thus, the Antarctic Treaty endangers the Antarctic wilderness by offering no real protection against misuse of the Antarctic wilderness. The Antarctic Treaty's use of phrases such as, "the interests of science and all mankind". These are meaningless in the view of Libertarians in that they abrogate specific responsibility.

Some Libertarians, of a more Utilitarian bent, may approve of the work of CCAMLR in giving some form of ownership, albeit yearly, in the form of licensing approved fishing vessels, determining a total allowable catch in each sector, and enforcing this to a degree, by controlling access to significant ports. As was commented on in a recent GCAS lecture, CCAMLR may be a toothless tiger, but members can certainly tighten the noose, by restricting access to ports of non-compliant vessels.

However, Libertarians would see the 1991 Protocol on Environmental Protection to the Antarctic Treaty that designated Antarctica as a "natural reserve devoted to peace and science", as idealistic and powerless to protect the Antarctic wilderness from future exploitation. While the Protocol speaks of establishing a comprehensive, legally binding regime, Libertarians would have little faith in its ability to give protection if really pressured by a nation state or other powerful interested group.

4. Current Paradigm in the Antarctic Treaty System

How does the Antarctic Treaty System understand Antarctic wilderness?
To consider this question, one needs to look at the background to the Antarctic Treaty and the setting in which it was negotiated.

The Antarctic Treaty, 1959, was signed following the 1957-8 International Geophysical Year (IGY). The IGY had been an immensely successful event that had seen international scientific co-operation that was unique for its time. The IGY was set in a political climate that was fraught with tension resulting from the Cold War; the super-power rivalry between NATO (US backed) nations, and Warsaw Pact (USSR backed) nations. Yet, the IGY had achieved 'a world-wide co-ordinated study of natural phenomena', (Suter, 1979, p24). During this time, twelve nations operated sixty stations in Antarctica. This resulted in 'rich returns of knowledge' (Quigg, 1985 p9). At the end of the IGY, the Scientific Committee on Antarctic Research (SCAR) was determined to nurture this international co-operation seen in the IGY. The Antarctic Treaty was largely a result of this.

Thus, the driver for the negotiation of the Antarctic Treaty was primarily scientific; to create a framework in which the international scientific co-operation of the IGY could continue.

In terms of the paradigms previously discussed, it would seem that the Antarctic Treaty was created from a Utilitarian paradigm. Conservation of the Antarctic environment or wilderness was not a primary concern, or even really considered in the discussions that resulted in the creation of the Antarctic Treaty. Of course, it may have been regarded as a 'given'. But, it is clear that the Deep Ecology paradigm, the idea that wilderness has its own intrinsic value, did not inform the Antarctic Treaty. Similarly with Libertarianism; the belief in the rights of the individual, in private property as the way to protect the

wilderness, with few government regulations does not fit with the purpose or outcomes of the Antarctic Treaty. The Antarctic Treaty, Article 4, puts all current and future claims of sovereignty to Antarctic territory on hold while the Treaty is in force.

Thus, this leaves us with a Utilitarian paradigm. The Antarctic Treaty was about science and establishing a form of governance of Antarctica that would allow scientific research and co-operation to continue.
'Science informs the co-ordinated actions taken by governments in respect to Antarctica', (Quigg, 1985, p13)

However, indirectly the environment and wilderness of Antarctica was protected, to an extent, by the Antarctic Treaty. Article 1 states that the Antarctic shall be used for peaceful purposes only. This surely must protect the environment, as must Article 5 which prohibits nuclear explosions and the disposal of nuclear waste on the continent.

So, the Treaty takes a Utilitarian approach to the Antarctic environment and wilderness. It was indirectly protected in order to enable international scientific research and co-operation to continue. In setting up a political framework to encourage scientific research and co-operation, it stepped away from political alliances and sovereignty issues- this enabled superpower rivalry to be 'frozen' in Antarctica. The Treaty removed the need for the USA and the USSR to try to establish some advantage over each other in Antarctica. This, in itself, protected the Antarctic environment from the destruction of war, or nuclear contamination from war, in order to allow scientific research to continue unimpeded by such events. This is clearly a Utilitarian position.

The Antarctic Treaty sees the Antarctic environment and wilderness in its pristine state as essential for scientific research. Thus, indirectly, the protection of Antarctic ecology and indigenous species is vital. (Myhre, 1982, p47)
As the Preamble to the Treaty states

'It is in the interest of all mankind that Antarctica continue forever to be used exclusively for peaceful purposes.'
The Treaty also created the international machinery to ensure that its edicts were followed.

The Antarctic Treaty was established in an era when the Cold War and fear of a nuclear war dominated the thinking of many. Environmental and conservation issues were not high on the agenda of the negotiators, but, indirectly, the environment and wilderness were afforded a measure of protection in order that scientific research and co-operation might continue.

In 1964, *The Agreed Measures for the Conservation of Antarctic Fauna and Flora* allowed for the special protection of species and areas. In 1972, *The Convention for the Conservation of Antarctic Seals (CCAS*) recognised their extensive exploitation during the 19th century and the potential for other human induced reductions in species. Whale populations had also been depleted since the early 20th century, and the commercial harvesting of krill was likely. In 1980, *The Convention on the Conservation of Antarctic Marine Living Resources* (CCAMLR) recognised that many species made up the Antarctic marine ecosystem. It therefore sought to manage "harvested, related, and dependent populations" covering a wider area than the Antarctic Treaty – following the Antarctic Convergence. This appeared to fit the utilitarian viewpoint well, protecting the marine ecosystem from over-fishing, and helping the recovery of the great whales and some fish species. In the 1988, CRAMRA (*The Convention for the Regulation of Antarctic Mineral Resource Activities*) attempted to regulate processes for exploration and exploitation of minerals should such an industry emerge. A key driver for the Convention was the recognition that mineral resource activity could adversely affect the "unique ecological, scientific and *wilderness value* of Antarctica" (CRAMRA, 1988, preamble) (emphasis added). The Convention provided mechanisms for the prospecting and extraction of minerals from the Antarctic continent, while seeking to mitigate negative impacts on the environment and to continue to circumvent national territorial claims. The Convention was signed by 18 participating states during 1988/89; however, it was never ratified or implemented due to domestic

level political pressure within the participating states. The failure of CRAMRA marked a shift in consensus towards more of a Deep Ecology paradigm.

This Deep Ecology paradigm is evident in a new set of agreements was negotiated in the form of The *Protocol on Environmental Protection to the Antarctic Treaty* (1991), known as *The Madrid Protocol.* This is essentially an agreement on the prohibition of mining on the Antarctic continent. It designates Antarctica as a "natural reserve dedicated to peace and science".

It also requires all human activities to be planned and carried out with regard to possible environmental impacts. There are rules for waste management, conservation of fauna and flora, prevention of marine pollution, and a new system for area protection and management. The Committee for Environmental Protection (CEP) was set up to implement the Protocol.

When the Treaty was set up, the main issues were the Cold War and the threat of nuclear war. During the last 25 years, however, environmental concerns have become increasingly important throughout the world, with Antarctica seen as the last pristine area. Thus, the utilitarian paradigm has shifted to more of a 'deep ecology' paradigm, where the role of human life is seen as part of the ecosphere.

5. Looking Forward: Pressures that may Change the Current Paradigm

The Antarctic Treaty System has largely been based around a Utilitarian paradigm with a shift toward a Deep Ecology perspective in the late 1980s. However, in the future, commercial pressures on the continent may influence international agreement on, and management of the Antarctic. These commercial activities may require a shift in paradigm to allow for their operation, or alternatively these commercial pressures may manipulate the paradigm under which the Antarctic Treaty System operates. The extent to which these activities will be tolerable relates to the impact that each commercial activity will have on the wilderness value of Antarctica, as well as the nature of the paradigm that the Antarctic Treaty System is operating under at that time. Commercial pressure is likely to come from several sectors including the expansion of tourism, bioprospecting and mining.

Providing the expansion of tourism is regulated and well managed, it is unlikely to seriously harm the environment. It may also be argued that tourism will create advocates for the wilderness as sightseers are converted to environmentalists through appreciation of the natural sublime seen in the wilderness. Therefore, tourism is unlikely to require a major shift in paradigm as it continues to develop in the Antarctica. Its ongoing impacts on the wilderness are likely to be minor or transitory, and it does not conflict with the peace and science philosophy of the treaty. This assumes however, that tourism continues to develop in its current sea-based manner and does not diversify into shore-based accommodation, facilities and infrastructure.

Bioprospecting is also unlikely to infringe on the on the quality of the Antarctic wilderness. The premise behind this statement is that most bioprospecting work is

conducted in laboratories outside of Antarctica, and only small samples are collected from Antarctica. Collecting these samples requires only a brief visit to the continent. The footprint of such visits can be minimised through environmentally aware logistical support.

The commercial activity that is likely to require a major shift in paradigm in the Antarctic Treaty System is mining. Mining is contradictory to the current paradigm operating in the Antarctic Treaty System. This was seen by the non-ratification of CRAMRA in the late 1980s. However, pressure may be placed on the Antarctic to provide mineral resources in the future. This pressure may come as the world's hydrocarbon resources are depleted and demand for these resources continues to rise, or as developing nations require resources to attain the standard of living that developed nations take for granted. Many developing nations do not share the same environmental ethic that developed nations like to promote. This concern for the environment is a luxury of the economically comfortable. Members of the Antarctic Treaty System need to consider if they are justified in preventing developing nations from using Antarctic resources to achieve the status of the developed world.

In order for mining to occur in the Antarctic a major shift is required from the Deep Ecology / Utilitarian view to a paradigm less aligned to the values of wilderness. Given that this shift in thinking is so converse to the current position, the reasons for mineral resource extraction must become much more compelling before they should occur under the present treaty system.

6. Conclusion

Limited human activity and impact on the Antarctic continent and waters have left Antarctica largely undisturbed and valued as one of the globe's last great wildernesses. Noting that wilderness is a recent social construct, this paper argues that humankind has always had to conceptualise natural environments, and poses that present debate on Antarctica's wilderness values take place inside this context. The paper argues that definitions of Antarctic wilderness are driven by broader social paradigms. Consequently, instead of building a singular definition of Antarctic wilderness, it establishes a framework from which competing definitions from Utilitarian, Deep Ecology and Libertarian paradigms can be analysed. After reviewing each of the paradigms' perspectives of Antarctic wilderness and parameters for human activities in the Antarctic, it finds that Utilitarian paradigms have largely driven the Antarctic Treaty System's approach to the Antarctic as a wilderness area from the IGY until the later 1980s. A shift toward a Deep Ecology paradigm in the late 1980s and early 1990s saw the non-ratification of CRAMRA and the subsequent negotiation of the Madrid Protocol. This consensus has largely continued to the present. It is noted that increasing pressure will come on the current wilderness consensus due to the commercial activities of tourism, bioprospecting and mining. It proposes that increased tourism and bioprospecting activities are possible inside the current paradigm; however, significant changes to the current paradigm will be required for future mining activity. How the Antarctic Treaty System responds to these pressures will determine the shape of the Antarctic wilderness for the future.

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